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ABSTRACT

This booklet, one in a series about life on modern farms, describes farm operations and some activities in the lives of six vegetable farmers throughout the United States. The booklet visits the tomato growing of Carl Schneider and his partners and the lettuce growing farm of Norman Martella, both in California. It then includes brief accounts of the operations of the potato farm of Ferrell Palmer of Idaho, the fresh and processing vegetables farm of the Bergums in Wisconsin, the Florida vegetable farm of Johnnie Goodnight, and the small vegetable farm of William James of North Carolina. The booklet then describes a rare market auction in Faison, North Carolina. For each of these operations, the booklet includes some information about the skills needed, the economics involved, and the daily lives of the farmers and their families. Although the booklet focuses on vegetable growing, it includes discussion of major topics that are common to all of the booklets: (1) farming as a business, (2) the impact of technology on farming, (3) the increasing specialization in farming, (4) the role of government in agriculture, (5) the diversity in farming, (6) the interdependence between agriculture and the rest of the economy, and (7) the way of life of farmers and their families. The booklet is illustrated with black and white photographs. (KC)

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PEOPLE ON THE FARM: GROWING VEGETABLES

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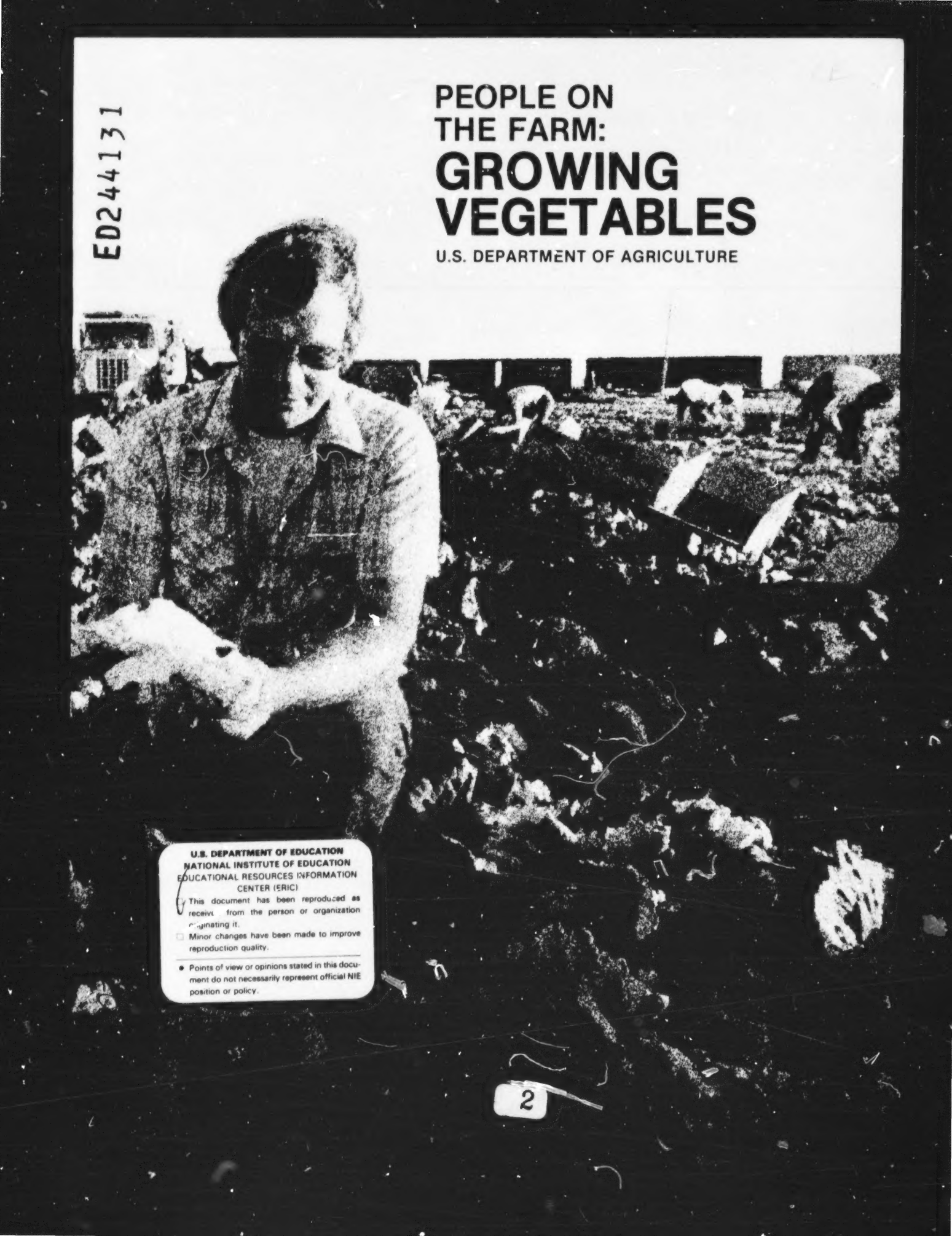

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INTRODUCTION

Vegetables are grown everywhere in the United States—even in deserts when there is irrigation. Many of them are grown in home gardens. This booklet, however, describes growing vegetables in commercial quantities.

Further, **People on the Farm: Growing Vegetables** touches upon the production of a few important vegetables. There are several others.

Near Woodland, Calif., Carl Schneider and his partners grow tomatoes to be processed into the catsup you pour over hamburgers and french fries, the tomato sauce you devour on pizzas and an uncounted number of other foods.

Since California devotes more than twice as much land to growing vegetables as any other State, it was inevitable that this booklet should include another vegetable producer from California. Norman Martella, of Salinas, represents growers who produce the lettuce for salads eaten throughout the United States.

Potatoes are a basic vegetable. Idaho produces far more than any other State. So this booklet includes a brief visit with Ferrell Palmer at Aberdeen, Idaho.

After California, which produces both fresh and processing vegetables, Wisconsin produces the most processing vegetables. So **People on the Farm: Growing Vegetables** includes a visit with Bob Bergum, a former professional football player who returned to farming near Rio, Wis.

About half the Nation's winter supply of fresh vegetables comes from Florida—the other half from Mexico. This booklet describes a Florida vegetable grower, Johnnie Goodnight, of Immokalee, Fla.

Finally, there are the small farmers of North Carolina who fill an important niche in the marketing of some vegetables in June and July, when the big producing States are either shutting down or haven't started up yet. This booklet visits one of them, William James of Bowden, and goes to a rare auction market at Faison.

Since World War II, vegetable production in the United States has swung dramatically to the west coast. In processing vegetables alone, California's output rose from about one-fifth of the U.S. total to more than half. The transcontinental shipment of fresh vegetables from California to eastern cities has been going on for several decades though.

Expansion of irrigation was a key factor in the increase of vegetable production in California. Without irrigation, much of the land planted to vegetables would still be desert. The long central valley of California, which stretches hundreds of miles south from Sacramento to Bakersfield, as well as that State's Imperial Valley, became literally a modern Garden of Eden—when water was provided by State and Federal water projects.

The size of all farms, including vegetable farms, continues to grow. The families depicted in this booklet are generally not small acreage farmers, but they do not represent the largest production centers for vegetables by any means. Many of the largest vegetable farms, those which own and operate several thousand acres, are controlled by families who have been in the vegetable business for years and have been able to grow as opportunities presented themselves. A relatively few large-scale operations are farmed by corporations whose principal functions are nonagricultural.

Within the vegetable growing business, there have been many changes. For instance, in the years between 1960 and 1971, per capita consumption of fresh vegetables dropped from 106 pounds a year to 96, but returned to 108 pounds a year by 1980. Meanwhile, per capita consumption of frozen vegetables has increased from 7 pounds to 10 pounds, and consumption of canned vegetables increased from 43 pounds to 50 pounds per person.

Fast food restaurants are making profound changes in America's eating habits. Salad bars, for instance, have increased the amount of lettuce and other fresh vegetables being grown and shipped. More french fries called for more potatoes to be grown on the farm, as well as more tomatoes for catsup to go along with the fries.

Also significant is the increased cost of fuel for transportation. Some experts say this will cause more and more vegetables to be grown closer to the areas of consumption.

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One of California's 700 tomato growers, Carl Schneider looked over a just-ripened crop of "peeler pear" tomatoes slated for harvesting the next day. Averaging an investment of about $1,300 an acre in the growing and harvesting of tomatoes for processing, California farmers provide 86 percent of the nation's need for such food.

PEOPLE ON THE FARM:

GROWING VEGETABLES

TOMATOES FOR PROCESSING

The red, oblong fruit broke crisply between Carl Schneider's teeth. The firm ripe meat of the tomato was juicy and sweet. It came as no surprise to Carl that this "peeler pear" would taste good—it had just reached full maturity. A field full of them would be harvested tomorrow. That's what Cal Can said it wanted. . .peeler pears.

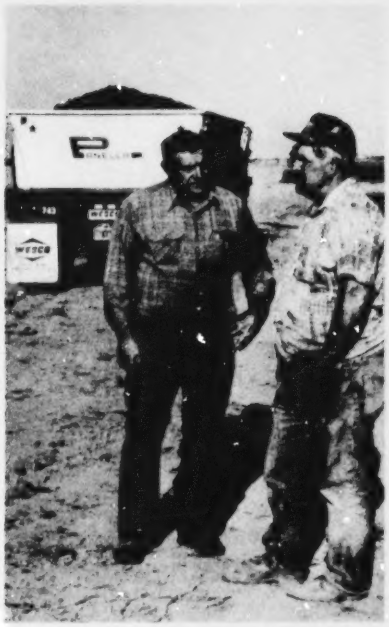
Carl has grown about a quarter of a million tons of tomatoes in his life, but he still likes to snap a ripe tomato off its vine and eat the ripe red fruit right out there in the warm California sunshine.

Like most farmers, he enjoys being in the field where the action is, and he doesn't mind getting dirty. He has been getting dirty all his life—when he was a guard on the Woodland High School football team, and later when he strung communication wire in the army.

When we visited, Carl and his partners, Bill Fricke and Joe, Carl's older brother, were outlining their plans for the day. Bill's big job in the partnership is to keep the machinery humming, and it was. Bill had made sure that the harvesting machines nearby would be operating at peak efficiency at this most crucial time in a farmer's year. So he felt free to take the day off. He and his wife Amelia were joining another couple at the horse races in the State Fair at Sacramento. Besides, Bill's two sons were deeply involved in the harvest.

Joe Schneider was going to pay some bills today and then get out the welder to harden plowshares. Office work and shop work are his contributions to the partnership. It was Joe who had the vision years ago to convert the family farm from a dairying operation to row crops such as wheat and corn, thus paving the way eventually for tomatoes.

Carl and 19-year-old Richard Fricke would oversee the harvesting of "rounds" today by two crews of sorters and harvesters. Rounds are tomatoes with the familiar shape found in markets. But these tomatoes would never see the fresh produce counter. Developed by scientists to withstand the shocks and bruises of mechanical harvesting, these round red tomatoes would end up in a



Above, Carl Schneider and partner Bill Fricke discussed day's plans by trailer filled with harvested tomatoes.

At right, the Schneider brothers, Joe, left, and Carl, talked about paying a $3,000 water bill.

Joe Schneider used tungsten rod to harden chisel used in plowing. Ten pounds of rods cost the partnership $200. Joe's son Robert and Bill Fricke's son David are foremen in the operation.

canner's processing plant.

Nearly all the tomatoes grown in the Sacramento valley are processed into puree and tomatoe sauce to become catsup or pizza toppings or an integral tasty part of countless other foods needing the unique tomato taste, color, and texture.

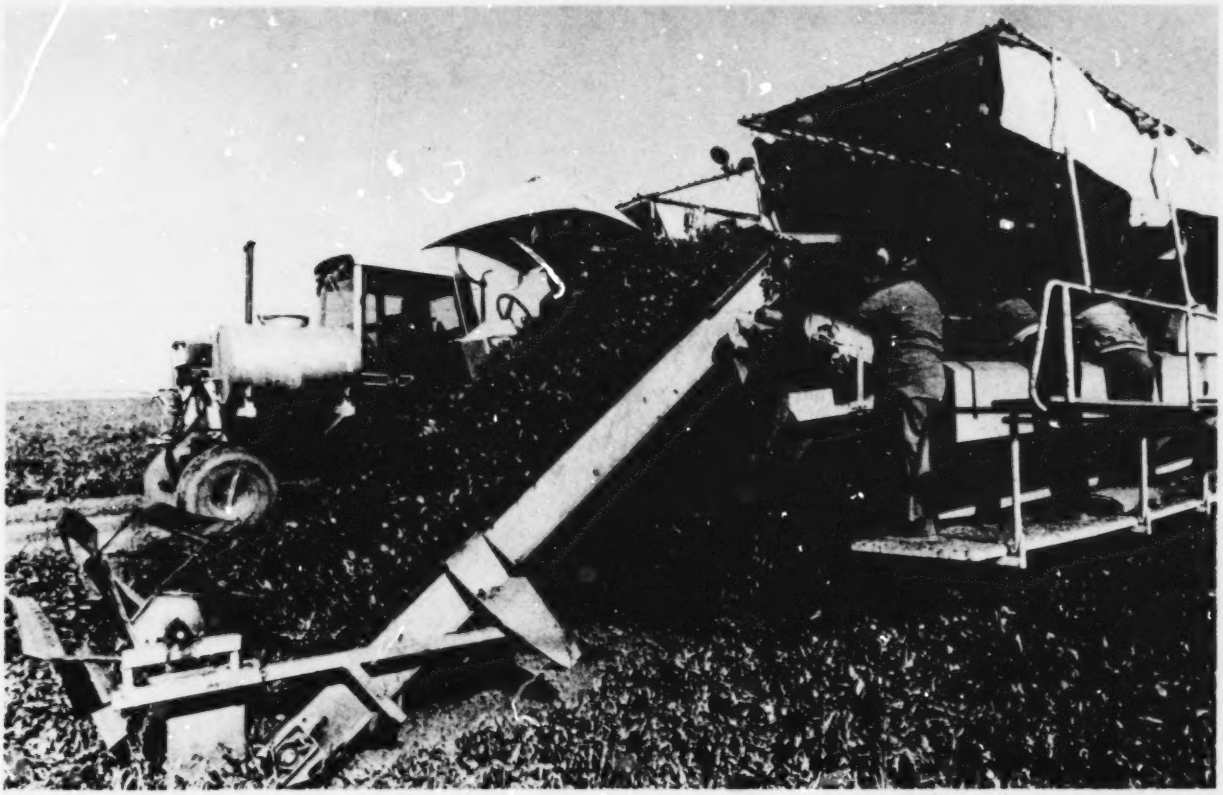
On the other hand, the peeler pears are an oblong variety of tomatoes developed especailly for their ease of peeling as well as firmness to withstand mechanical harvesting. They are canned whole or in big chunks and draw a premium price in the stores. Cal Can (California Canners and Growers, a cooperative owned by Carl and other farmers) had asked for peeler pears to be harvested tomorrow. The processing plant would be geared up to handle that particular fruit, rather than rounds.

Harvesting crews would work well into the night to keep a steady stream of ripe red fruit headed toward the processing plant.

Unexpectedly, the conversation of the men was interrupted by silence—or, at least, something quieter than diesel throbbing. The great lumbering landship of a tomato harvester nearby had ceased devouring whole rows of tomato plants and had fallen into a silent sulk.

Soft Spanish words filled the void. The Jaime family—Arturo, Refugio, Alicia, Carmen, Martha, and Neyda—jumped nimbly off the machine on which they worked. They quickly pulled tacos out of the hidden recesses of their clothing and settled down to eat. The family of a Mexican national who worked for Carl as an irrigator for 30 years, the Jaime family had returned again this year to join in the harvest.

It was 9 o'clock in the



A modern replacement for stoop labor, tomato harvester elevated whole plants onto a shaking device, which separated tomatoes from their vines. Human sorters along the sides and rear of harvester removed any stones, vines, dirt, or green tomatoes which have escaped earlier processes in the machine.

morning. The Jamies—sorters, they are called—would get 15 minutes off after their first 3 hours of work.

Their job was to sort out the vines, stones, hunks of dirt, and bruised and unripe fruit which tumbled past them on conveyor belts along the outside of the machine. They work while standing on platforms along the side and rear of the harvester.

The Schneider brothers, Fricke, the Jaimes and a host of other truckers, inspectors, and packing house workers are among the thousands of people involved in the harvest each year of between 5 and 7 million tons of processing tomatoes in California.

The canners contract to buy California's processing tomatoes months before they are harvested, even before they are planted, in most cases. Then they tell the growers, who own or rent the land, when to harvest those tomatoes. They may even tell the growers when to plant and what variety to plant.

Today, it was time for the Schneiders and Fricke, who plant tomato seeds in nearly 800 acres of rich Sacramento Valley land every year, to harvest some of their "rounds."

As soon as the harvesting machine's diesel awakened with a snarl, the Jaimes jumped aboard her sides like birds on the back of a rhinoceros. The clumsy—appearing but ingenious process of modern tomato harvesting started again. The Jaimes adjusted their bandannas, or caps, and gloves and began sorting. In a rhythmically sweeping motion of their arms, they picked out the extraneous matter from the flow of tumbling red fruit hurrying past them on the conveyor.

A few years ago, there were twice as many sorters standing beside the conveyor belts on tomato harvesting machines. But the "eyes" of electronic sorters—which can tell a green tomato from a ripe one and see that the green ones are discarded— had made the other workers unnecessary.

Before the mechanical harvester, it took back-stretching, stoop labor to harvest the tomatoes.

With its bright canopies and slow pace, its slight rocking motion and its human cargo, the harvesting machine looked like a calliope trying to catch up with the last circus which had passed through town.

THOUGHTS OF AN APPRENTICE TOMATO SORTER

(A writer's notes)

You have to be the right size, that is, about 5 feet tall, to be able to bend over the bar that is between you and the conveyor belt.

The sorters wear long pants, bandannas, and hats. They all work in shade.

Sorters are constantly picking. Their first priority seems to be dirt. . .chunks of dirt. . .then an occasional vine, then small green tomatoes, then damaged tomatoes. The constant fast line can be dizzying. They wear rubber gloves.

They don't talk to one another. But they say a lot with their eyes when they straighten up to wipe their brows with an arm.

They throw chunks of dirt and stuff down through an opening between them and the conveyor belt. It seems to be a sweeping motion, like a gambler sweeping in the chips off a gaming table. But the good fruit is passed on to the elevator. They scoop out two handfuls of trash at a time and pull the stuff over the edge. That's what's happening at the rear of the machine. Up front and on the left side there are three sorters sweeping out branches mostly. The machine gets rid of a lot of branches too.

A lot of dirt and smaller tomatoes fall through the sorter at the end of each conveyor belt before they get to the human sorters.

The driver often gets out of his seat on the harvester, walks out in front and disentangles vines from the conveyor belt, which has been lifting plants up to the sorting belts. He has an iron bar to keep the front of the machine from clogging. The harvester, with its ambling gait and slight rocking motion over the soil and canvas awnings looks like something left from a circus. Only music would be needed to complete the picture.

At 10 minutes to 10 in the morning, the driver unfurled his umbrella over his seat to protect himself from the sun.

What are they constantly picking at? I don't see that much to throw out. Ugh, the squashed ones. There I missed a stone. . . well, you just can't get them all. Everything comes so fast. It makes you mad and you want to do a better job. Then you're mad at the machine for not doing a better job. And there's no chance to talk above the noise of the motor, a diesel, or sing. But you can think.

Suddenly there are fewer tomatoes, then no tomatoes. Then we can sit down. But the noise continues its assaults.

"No es facil!" I scribble on my pad and show the young girl next to me. She smiles as if saying to herself, "don't do anything to offend this gringo who has the freedom to move all about the machine and the field and who has a cameraman with him."

Look at all those tomatoes coming down the belt. There is some temptation to pick up a branch and look at it to see if I should pick off the ripe tomato on it. . .but there is no time. Throw it all away.

Some of the hand movement is just pawing through the tomatoes to look for damaged ones. The boy by the elevator controls the flow into the wagon, though the tractor driver slows or speeds up so that the elevator is placed over that part of the wagon he wants to fill.

I can leave. The sorters cannot. Behind the harvester you can't see where you've harvested. . .there are all those tomato plants still in a row—though in piles—and there are green tomatoes among them. There are even some red tomatoes. This is not a totally efficient machine. But I know there are fewer tomatoes in the plants that are left because of all those that went in front of me on the conveyor belt. And there are the wagons brimming with red fruit at the end of the field.

Pear-shaped tomatoes were sorted at the rear of the harvester by Arturo Jaime and his sisters, Carmen and Martha. In 1965, when legislation made it more difficult to hire farmworkers from Mexico, mechanical harvesting of canning tomatoes jumped to 20 percent of the crop, from 3 5 percent in 1964. Since 1970, all of the California crop has been machine harvested.

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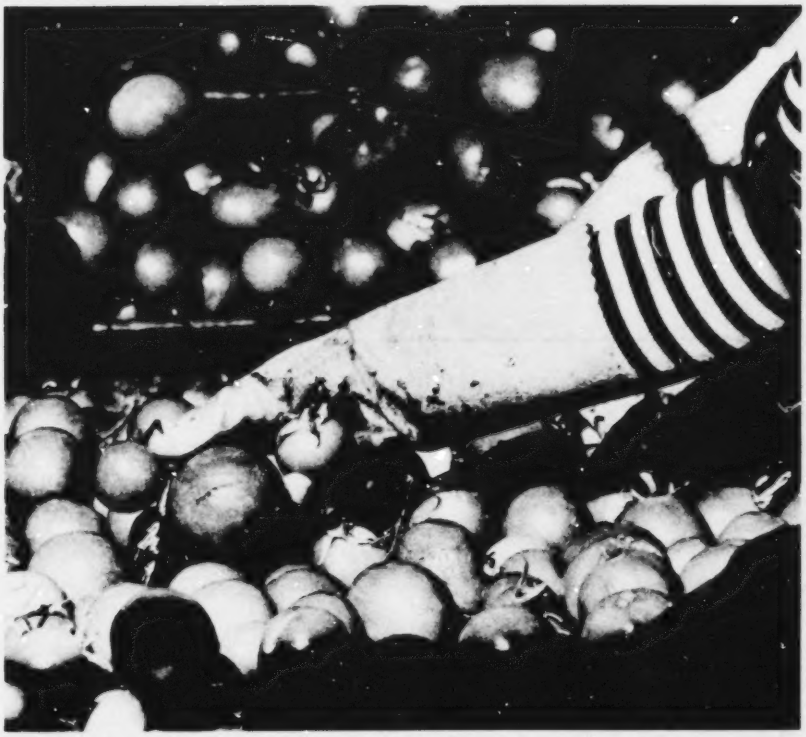
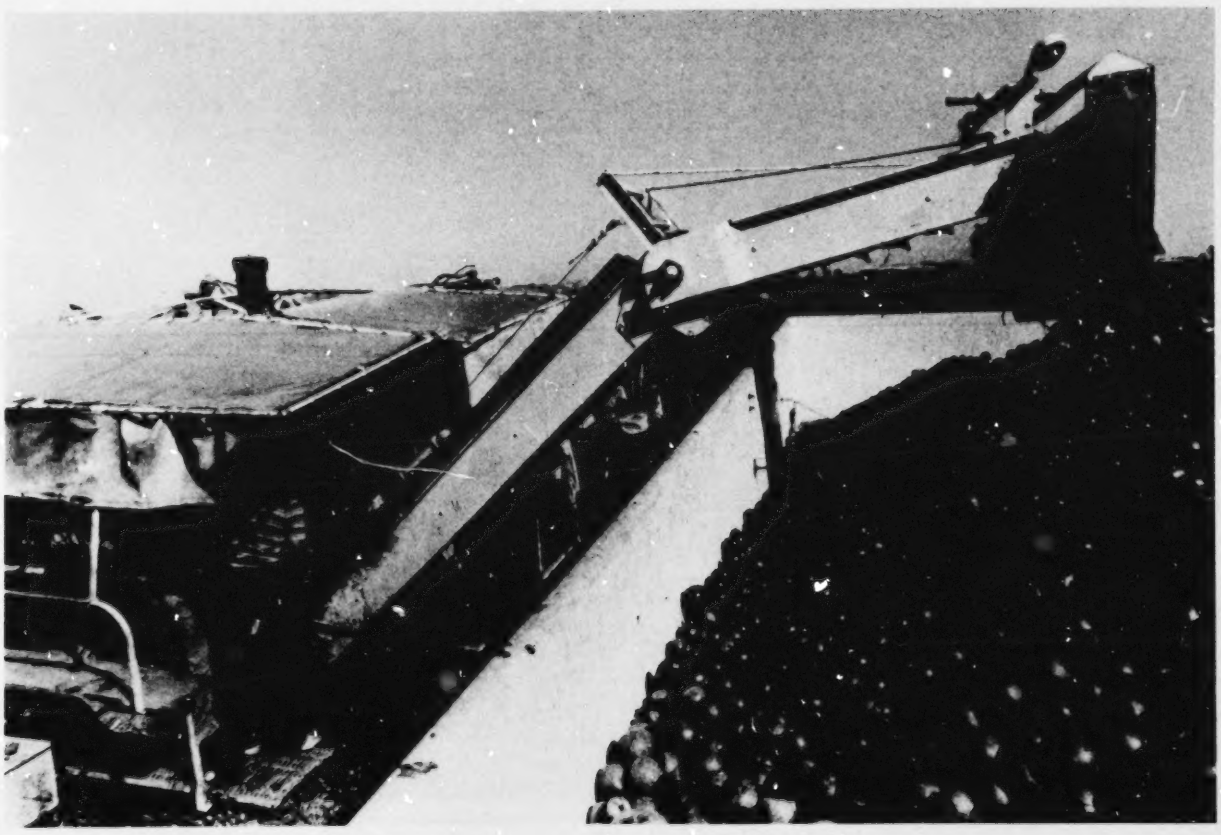
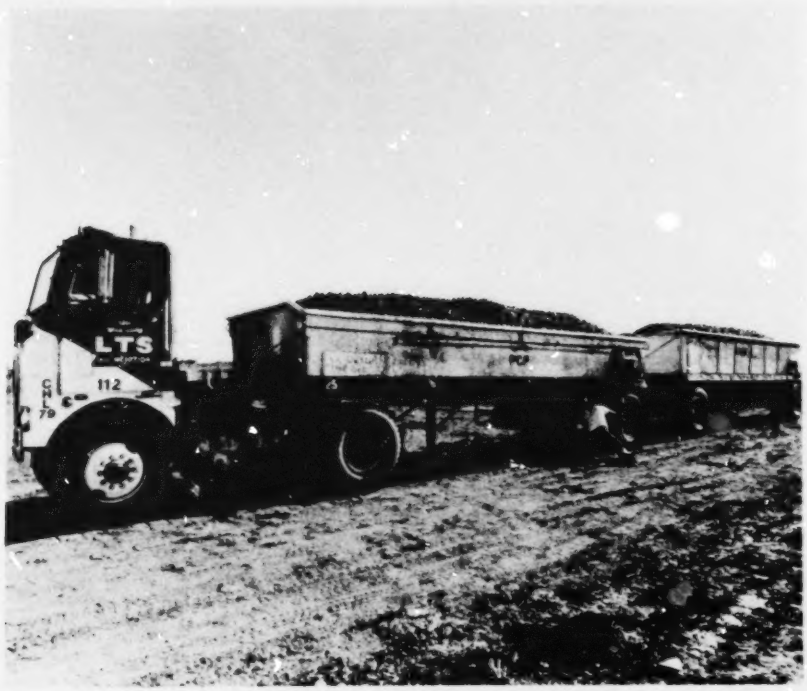


When introduced, the mechanical harvester saved 52 man-hours of labor per acre, and $7 per ton in harvest costs. While processing tomato production has nearly doubled since 1964, the amount of labor needed to harvest the crop has been halved. Below, in final stage of harvesting, tomatoes, specially bred to withstand rough machine handling, were elevated into trailer.





Truckers hired by canners drove the harvest to a State inspection station, then to the processing plant. Trailers with their bright red cargo are common sight on California highways at harvest time. Two-way radios permit them to be dispatched to sites of greatest need in the area throughout the day and night.

Metal teeth in the machine's mouth wrenched whole tomato plants out of the earth. A reel tossed them onto a conveyor belt, which lifted them, fruit and all, to the top of the machine. A shaker there separated the ripe tomatoes from their plants, sending fruit tumbling to each side for sorting. With green tomatoes still attached, the discarded plants dropped to the ground behind the harvester.

Refugio, Alicia, and Carmen pulled out the dirt, branches, and bruised and green tomatoes that the shaker somehow missed. Stones and things even they couldn't catch in the dizzying flow were soon spotted and discarded by Arturo, Martha, and Neyda on the rear platform.

The harvester emptied into wagons being pulled alongside. Whenever the wagons were filled, they were replaced by another pair with scarcely a hitch in the harvesting.

Just before the lead wagon was commpletely filled, Richard Fricke, driving another tractor, pulled two empty wagons in line behind the filling wagons. He stopped, stepped down, and walked forward to the lead tractor, where he jumped up and tapped its driver on the shoulder. The lead driver, in turn, jumped down and walked back to the other tractor and wagons Fricke had left. Soon the front two wagons were completely filled and Fricke drove them away to the edge of the field, where a truck would haul them to a weighing and inspection station in town. The replacement wagons were pulled into place beside the harvester, which had stopped moving for only 15 seconds.

Carl, who was alone now, watched with quiet satisfaction at the four wagons parked at the side of the field, each filled to the brim with 25 tons of bright red fruit. The wagons acted later as trailers, as semitractors hitched directly to them and hauled them in pairs at cruising speed along highways. The fruit represented 5 months of careful ground preparation, cultivating, irrigation, and spraying—the work of growing tomatoes, which enabled Carl and his partners to make a living. This was payoff time!

Carl had planted tomato seeds in this field in late February, the earliest of many plantings that spring. Usually it takes only 125 days for tomatoes to grow and mature, but the tomatoes in this field had been slow in maturing.

It had been a cool spring. The planting was almost an anticlimax for Carl, who had spent considerable time just getting the ground ready for planting. First, Carl cut up the residue left in the field from the previous crop, which had probably been either corn or wheat. Carl disked the stalks right into the soil with what appeared to be a gang of pie plates turned on edge. Then, he went over the field with a deep plow, turning the rich soil over and opening it to the sky. At the same time, he applied a preemergent herbicide to keep weeds, whose seeds were suddenly exposed, from popping up all over the field.

Then, Carl or one of his men planed the field as level as humanly possible with an earth mover. All the fields seemed as flat as a table top, but for the farmer who must later run a harvesting machine through it, every mound and dip had to be leveled out.

Still the ground wasn't ready for planting. Carl broke up the clods of soil next with a steel-fingered plow called a chisel plow.

Then the soil was ready, but it wasn't shaped correctly. Carl plants the tomato seeds in

beds that are built up between straight lines of furrows, which will later control the flow of water through the field. So he pulled a machine through the field that builds up these beds and flattens out their tops. At the same time, he applied fertilizer laced with insecticide.

Was Carl ready now to plant seeds? Physically, yes. But one more step was needed. He had to sell the tomatoes he hadn't even planted. More correctly, he tried to find a buyer willing to agree in late winter to buy a specific number of tons of tomatoes in the late summer. It's called forward contracting, and the practice isn't restricted to tomato growing.

There are only a handful of companies that buy processing tomatoes in California. . .about 5 or 6 commercial canners, as they are called, whose names are familiar to supermarket shoppers. Like most farmers, tomatoes growers sell their product at the best price they can get. . .not whatever price they choose to ask. However, unlike wheat and corn growers, they have few buyers haggling over their production.

Processing tomato contracts "vary all over the lot," Carl explained. They may call for $47 a ton as a base price (or some price which covered the cost of production) and then two other payments later in the year, or even the following year, as the processed tomatoes are sold. The price per ton varies and so does the size of the second and third payments, depending on the price tomatoes are bringing in the marketplace.

Other terms of the contract are also argued heatedly and at length by packers and growers: How many green tomatoes in a load will cause the whole load to be rejected? What percentage of machine damaged tomatoes in a load is "acceptable" before a grower's payment is reduced? How

CASH RECEIPTS AND DISBURSEMENTS
Schneider, Fricke & Schneider 1979

Cash Receipts	
Tomatoes	$831,626.20
Grain	276,602.98
Hay	8,272.75
Outside work—harvesting	6,438.47
Interest	1,720.37
Retained in cooperative	35,161.10
Paid out retains and patronage dividends	34,607.17
Other partnerships	4,259.00
Gas tax refund—state	186.21
Gas tax refund—federal	285.00
TOTAL CASH RECEIPTS	$1,199,159.25

Disbursements	
Salaries and wages	$125,548.50
Payroll taxes	13,568.81
Outside services	72,903.16
Fertilizer	267,199.21
Seed	28,997.72
Rent—property	167,110.36
Rent—equipment	12,009.28
Irrigation	33,342.97
Gas and oil	51,340.85
Depreciation	72,941.47
Repairs and supplies	98,314.78
Taxes and licenses	5,270.95
Insurance	40,218.32
Office supplies and utilities	1,026.90
Dues and subscriptions	855.75
Legal and accounting	960.00
Profit sharing plan	6,265.85
Interest expense	85,367.69
Willow Oak Harvesters—tomato operations	146,282.11
	$1,229,524.68
Excess of disbursements over cash receipts from farm operations	$30,365.43

Other Disbursements:	
Insurance—partners	$ 32,737.44
Sundries—partners	1,619.94
Donations	1,030.00
	$ 35,387.38
Excess of disbursements over cash receipts for 1979	$65,752.81

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Chisels dug 24-inch deep furrows in preparing ground for next tomato crop. Sharp disks in roller behind chisel plow, examined by Carl Schneider, cut up heavy dirt clods brought up by chisel. Chisel lets oxygen, winter rains into soil. Tomato roots go six feet deep. Production costs before tomatoes were planted reached $50 an acre in 1979.

much is "too much" dirt, vines, rocks, and other extraneous material in a load?

Carl likes to plant a third of his tomato acreage at a time, beginning late in February or early March. When those plants reach the first true leaf stage (beyond the seedling leaves) in 2 or 3 weeks, Carl plants the second third of his acreage, but he spreads this planting out longer. It usually takes a week or 10 days to plant each third.

The result is that harvesting is spread out from the third week of July to the first week of October to accomodate the packer. If all the tomato growers in the Sacramento valley harvested all their tomatoes at the same time, the processing plants would be overwhelmed. So the contracts spell out how many tons the packers want from each grower at what time of year. When harvest starts in the valley, each grower is given a quota to deliver each week and each day. The whole harvest in the valley is carefully and constantly monitored so that this highly perishable product is not left standing in the sun for hours or the processing line is not halted for lack of fruit. Trucks are shuffled among farms and processing plants as necessary. Every vehicle contains a two-way radio.

Cal Can alloted Carl and his partners 1,250 tons to be delivered the last week in August of 1980. Pacific Coast Producers, another cooperative, wanted even more.

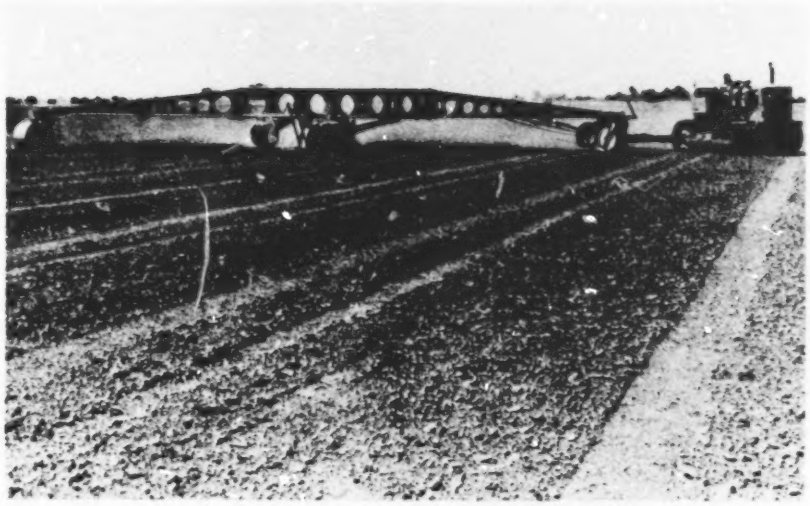
So truckers hired by the packers started arriving at the fields at mid-morning and continued hauling well into the night.

For the year, Carl had contracted to sell 20,000 tons. He planted 720 acres. By the end of August, he had delivered half the tomatoes his contract called for. He expected to have the other half delivered by October 1. If he produced more than 20,000 tons, then he guessed he would have to plow them under because nobody would buy them. He had planned to get 30 tons from each acre, but Carl and the soil were producing more than that in 1980.

Twenty thousand tons of tomatoes at, say, $50 per ton. . .that's a million dollars worth of tomatoes grown by the Schneiders and Fricke in 1 year. They wouldn't know the final figure until December 1981, however. That's when the final check for the 1980 crop would arrive in the mail.

In 1978, the partnership known as Schneider, Fricke, and Schneider grossed $716,000 on the sale of tomatoes.

"That money just goes



Irrigation water will flow evenly throughout this 350-acre field after Carl Schneider levels it with a Landplane before he shapes planting beds. Rows less than two football fields long reduce efficiency of the harvester because of time lost in turnarounds. Large fields and large machines go together.

through your hands," Carl said. "It certainly isn't your net.'

An Extension Service farm adviser for Yolo County, where Carl lives, figured that if the average farmer had an electronic sorter (which the partnership has), it cost the individual farmer $1,265.48 an acre to grow tomatoes in 1979. That included investment costs, such as the cost of renting the land and equipment, as well as a management charge for the partnership.

Carl figured the partnership was paid $1,250 an acre for their tomatoes that year. So they either "lost" about $15.50 an acre that year, paid themselves less for the management, weren't able to depreciate the machinery at a proper rate or in some way failed to generate what business advisers would call a fair return on their investment in time, money, and labor.

Then why grow tomatoes?

The California grower of tomatoes for processing is caught in an economic vise. On one side is his heavy investment in machinery. Carl figures that the partnership's farm machinery—most of it for growing tomatoes—is worth $500,000. Another tomato farmer estimated machinery investments ran from $300,000 to a million dollars.

On the other side of the vise, the grower is pressured by the owners of the land the partnership works. Landowners can make more money if their land is planted to tomatoes than they can if it is planted to any other crop. Carl's partnership rents nearly all of the land it works. The rental deal the partnership works out with the landowner depends on the crop being planted. And the tomato deal is always best for the landowner, though Carl says wheat is catching up.

"You have to grow tomatoes in order to rent the land," Carl said philosophically. "If you don't, someone else will come along and grow them for the owner."

Not that tomatoes are all that the Schneider brothers and Fricke grow. They usually plant two and sometimes three crops on the same piece of land each year. The warm climate of the Sacramento valley and the availability of water during the dry season make this possible. Further, Carl doesn't like to plant very many continuous crops of tomatoes on the same piece of land because diseases and insects will build up in the soil to destroy the next crop. So Carl rotates the crops he plants. Doublecropping without tomatoes will bring the landowner $80 to $200 an acre, which is close to the return on tomatoes alone, Carl noted.

On 2,200 acres of rich Sacramento valley land in 1980, the Schneider-Fricke partnership not only grew 18,000 tons of tomatoes, but 900 tons of wheat, 215 tons of barley, 110 tons of rice, and some hay.

Almost all of the 2,200 acres were rented. Carl owns 70 acres of his own land, Joe owns 180, and Bill owns 70.

While the weather in the valley is nearly perfect for growing tomatoes—assuming you have a supply of water for the long dry summer—hailstorms have been known to ruin crops. A rain in the summer also would be disastrous because the moisture under the skin of the fruit would warm up in the heat of the day and crack open the skin. Because of this, Carl irrigates his tomatoes along the ground only, rather than with overhead sprinklers.

Then there's the dry hot Yolo County north wind.

"You never know when it's going to come," Carl said. It not only dries out the plants but can also destroy blossoms that would have become fruit. Carl described the problem—

"As the outside blossoms are destroyed, the inside blossoms survive and later provide fruit. Then new blossoms appear on the outside of the plant. They bear fruit. Finally, you have to decide whether to harvest the ripe inside fruit and throw away the green outside fruit or wait for the outside fruit to mature."

Carl left the harvesting site to inspect some of the irrigation gates in a system which usually supplies all the water his crops need throughout the dry summer. Most of Carl's water comes down irrigation canals from Clear Lake and the Indian Valley Reservoir, 80 miles away in the Pacific coast range of mountains. Water from the winter rains is stored there for delivery through the canals. Such water cost Carl $7.50 per acre-foot (enough water to cover an acre a foot deep) in 1980. Well water that he has to pump himself costs $20 an acre-foot. So Carl sticks to the mountain water as long as possible. However, there are winters when not enough water accumulates in the reservoirs, and the farmers are on their own.

Carl has farmed nearly all his life. Now 60, he is considering retirement.

His father, born in Germany, died when Carl was 12 and Joe was 20. An all-valley football player, Carl had been offered scholarships to Notre Dame University and the University of Santa Clara, but his mother needed him on the farm. So when he graduated from high school in 1937, Carl went to work full time on the family's dairy farm, located right where he farms today.

In 1945, when Carl and Bill Fricke were discharged from the service, they decided to enter farming with Joe Schneider, who had stayed home to run the farm. They started with 500 acres, the amount owned by both families at the time.

It wasn't until 1954, however, that they planted their first tomatoes.

"Someone said Stokely Van Camp might want some tomatoes," Carl recalls "so we went to Stokely's and made a contract to grow 40 acres that year." Again, they were a success.

Partners' wives have taken less active role in farming in recent years and spend more time with their hobbies. Amelia Fricke, above, likes to paint, while Margaret Schneider, below, wife of Joe Schneider, spends a lot of time in her garden. All three couples like to visit Lake Tahoe.

Jane Schneider, wife of Carl Schneider, is secretary to the dean of the Woodland Unified High School. Reared only a mile from her present home, Jane married Carl in July, 1941, after they went together in high school.

They've been expanding ever since.

Their wives have been working right along with them, taking their turn at the tractors as the enterprise grew. Now they have drawn back from such active participation. Carl's wife, Jane, is a secretary in Woodland High School. None of their children is involved in farming. Their son, Carl, is a certified public accountant in Sacramento; their daughter Geneva has married Douglas Koevel, a trucker, and lives nearby; and the other son Gerald is a mechanical engineer with a sugar company in Woodland.

Bill's son, David, and Joe's son, Robert, act as day and night foremen of the farming operation for the partnership.

Carl and Jane, Bill and his wife, Amelia, and Joe and his wife, Margaret, like to jump in their cars and drive over to Lake Tahoe for entertainment.

Carl compares farming to gambling.

"Sometimes I think you might as well go to the dice tables," he said. "I enjoy both, and I've won or I wouldn't go back. But the odds are stacked against you in both places."

Carl can do little about the weather in a semi-arid region where the annual rainfall ranges from 7 inches to 35 inches a year (both extremes are disastrous) and the ground water level has dropped from 20 feet below the surface in 1945 to 140 feet during the drought of 1976-77. But he and other farmers have tried to strengthen their bargaining position for the prices they are paid for their tomatoes.

They organized the California Tomato Growers Association and they formed cooperatives to process their own tomatoes and fruit. The association bargains for its members with the commercial packers over the terms of the contract. The bargaining power of the association weakens when members drop out and bargain as individuals. Some growers just won't join, on the principle that it deprives them of their independence. The commercial canners, for their part, encourage private bargaining rather than bargaining with the growers as a group.

Carl, who served as president of the association for 3 years, admits it is not as effective as many growers would like it.

Carl and others sell to two cooperatives, The California Canners and Growers, which started in 1960, and the Pacific Coast Producers, which started in 1968. Growers buy shares in the cooperatives and the cooperatives, in turn, guarantee they will buy their tomatoes—an acre's production for each share. The price is based on what commercial packers are paying individual growers.

There are limitations. Neither Carl nor any other grower can buy all the shares in the co-op. The number of shares available is governed by the co-op's processing capacity and the need for tomatoes in the open food market. Some years, there might be a surplus of tomatoes (perhaps fewer people wanted to buy catsup or pizza's) so the co-op's board of directors cuts everyone's allowable production, say, 10 percent. Or in other years, there may be a shortage of tomatoes—hail might have ruined the harvest of many farmers—so the co-op might offer to buy some extra production from members.

It is hard to visualize Carl Schneider retiring. . .even for Carl.

"I'm going to work my way out of it," he said one day. "I'm 60 years old and I want to enjoy life. You can't stand still in farming. You've got to grow or get on."

But on another day, he said, "Who said I was going to retire?" And he talked about the future of farming. He said he believed the processing tomato market is full now and that farmers will have to find other crops to grow so that they will be able to say "no" to the buyers if the price isn't right. He mentioned sunflower seeds, melon seeds, and cotton.

Still, even as Carl and Jane prepared to leave their home for an evening of bridge with friends, nature seemed to be telling Carl where his future lay. The full harvest moon, rising through the haze of the valley, dominated the eastern sky with the most spectacular bright red "tomato" seen in the valley all summer.

Tomorrow, Carl would be harvesting peeler pears.

EQUIPMENT OF SCHNEIDER, FRICKE AND SCHNEIDER

2 Carryalls, one 2 wheel, one 4 wheel
19 tractors
3 sets rollers
2 sets Sweede harrows
1 set of spike-tooth harrows
1 3-row tomato planter
1 6-row corn and beet planter
1 12-foot cotton chopper
3 sets cultivators
4 sets sled cultivators
1 ditcher
2 plows
3 discs
1 swather
1 3-wire hay baler
2 Johnson side delivery rakes
2 diesel pumps for 1 mile of rolling sprinkler line
1/2 mile of 8-inch lead line, for sprinklers
2 Electronic tomato harvesters
5 tomato carts
1 3-row Incorpater for tomato beds
2 spray rigs
Shop tools: air compressor, steam cleaner, power drills, and sanders, etc.
2 grain harvesters for barley, wheat, rice and corn
2 stationary welders
1 portable welder
1 chisel
1 disc chisel
1 Marvin Landplane
1 forklift
1 bank out wagon
1 case grain drill
1 8-foot disc
Siphons, about 3,000
3 portable fuel wagons, 500-gallon capacity each
1 12-foot float
1 levee shaper
2 scrapers
9 pickups, 7 with radios
1 6-row thinner
1 2-inch sump pump
8 stainless steel chemical tanks on wheel tractors
1 10,000-gallon diesel storage tank
1 10,000-gallon fertilizer storage tank
2-1/2-ton trucks with 1,000-gallon tanks

Only part of the equipment needed by Schneider, Fricke and Schneider to farm is visible above. Behind Carl Schneider is a grain harvester. Other implements, from rear to front, include a 1965 tomato harvester, a planter, two rolling cultivators, a ridger, and a cultivator sled. Siphon pipes, below, transfer water from irrigation ditches to fields. Setting out siphons without stopping is an art form, Carl said. One such irrigator worked for the partnership for 30 years, then retired into the construction business in Mexico.

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"I give him moral support," is how Cynthia Martella, a fifth-generation Californian, describes her role in the farming operation of her husband, Norman Martella. Behind them, a nephew, Dave Martella prepared the heavy black soil of the Blanco area of the Salinas Valley for another lettuce crop. The Martellas have four children.

GROWING LETTUCE

Now 38, Norman Martella plans to retire from growing lettuce in just 10 years.

"I figure the only thing I've really done in 12 years except make a living is build up equity in what I've got," he explained. "Why should I sit here until I'm 65 and ready to die before I enjoy that equity?"

"In 10 years, my family's going to be gone and I won't have to bust my back anymore to support them. And the moment I don't need to do that, I've got to get out of this business."

Norman is a driven man. He has been driving himself ever since he quit school in 1967 to save the family farm at Salinas, California. He graduated from the University of California at Los Angeles the previous year with a degree in accounting. He was studying for a master's degree in business administration at the University of Santa Clara when his brother quit working the family farm.

At first Norman tried to work the farm and attend school 75 miles away at the same time. He would start work at 1 a.m. on the farm and quit by 4:30 p.m. in order to attend classes at the university. Then he'd drive back to the farm at 11:30 p.m., sleep a couple of hours, and head out into the fields again. He was getting only 1-1/2 to 3 hours of sleep a night. Once, he was poisoned accidently by the insecticide he was applying. Then one night he fell asleep on the road. At that point he decided to quit school and devote his full attention to the farm.

Norman described the farm as near bankruptcy when he took over. The family was $480,000 in debt, the land was mortgaged to the limit, and no one would lend them any money.

"My brother was always interested in farming," Norman recalled, "but his interest lay in experimenting. He did a lot of research and we did a lot of fantastic things on the farm. But the problem was that he wasn't doing the basic farming. You can try new things, new ideas, but you try to experiment a little at a time. You don't do the whole thing at once. Basic farming is the only way you're going to make money.

"I mean you just don't rock the boat."

The boat almost sank that first year under Norman's management. That year, he planted 380 acres of celery. But that year, workers at a major national soup company went on strike. All of the celery that had been grown to go into soup went onto the fresh produce market instead, competing with Norman's celery. The prices of fresh celery plummeted.

"We were almost ruined. We didn't get enough money to pay for the hoeing and thinning," Norman recalled. "We harvested 220 acres and disked (plowed) under the remaining 160 acres."

His back to the wall, Norman learned in a hurry how to grow lettuce. He learned everything he thought he needed to know in 30 days. But more importantly, he learned how to take nearly all the financial risk out of farming by contracting to grow vegetables for someone else.

"I'm not going to be broke ever again period," he said. "I was broke one time. I'll never be broke again."

Most lettuce growers in the fertile Salinas valley, where John Steinbeck was born and wrote, grow lettuce for themselves. That is, they retain complete control over the lettuce right up to the moment it is sold as mature heads to brokers. The price they get depends on the demand for lettuce that day across the United States.

Norman called the fresh produce market the only farm market left that is "pure supply and demand." Lettuce is certainly one of the most volatile markets.

In a year's time, lettuce prices can vary from $2.50 to $18 a box (which contains 24 heads of lettuce). It is not uncommon for the price of a box of lettuce to change $1 a day for a week—up or down. With an average yield of 750 boxes to an acre, that variation of a dollar can mean a $112,500-a-day gain or loss for a farmer with 250 acres of lettuce.

"In the lettuce market," said David Vaughn, a marketing expert in the U.S. Department of Agriculture, "the little guy is a river boat gambler." His definition of "little" included a farmer who grows lettuce on 200 acres, even though land is valued at $16,500 an acre in the Salinas valley. Norman figured the 200 acres he works is worth a total of more than $3 million.

Norman estimates there are 500 lettuce growers in Monterey County, where he lives. The smallest grower would plant lettuce on 80 acres and the largest on 10,000 acres he said.

The largest growers, Vaughn explained, can spread the variations of the market over a year's time, as lettuce on their plots of land throughout California matures at various times during the year. In 2 to 4 weeks of "hot spots," or favorable prices, the larger grower might make up for losses sustained the rest of the year, he explained.

The smaller grower spreads his highs and lows out over a period of years, though he, too, harvests and sells over a period of a few months each year.

In the Salinas area, lettuce was selling for $2.50 to $3 a box in 1980. The following year, it was bringing $7 to $8 a box. Farmers planted less lettuce the second year, Vaughn said, so there was a smaller supply.

Norman works roughly 210 acres of land twice a year, mostly growing lettuce. In 1980 he planted 416 acres for the whole year. That was made up of 272 acres of lettuce, 60 acres of spring "flower" (spring-harvested cauliflower), and 85 acres of fall "flower."

He shares ownership of the land with his aunts and father.

Norman contracts in September or October to grow lettuce for one, two, or more buyers. In 1980, he contracted to grow lettuce only for Hansen Farms, a large-scale lettuce producer that Norman said worked several thousand acres of its own land. Norman agrees to provide land ready for planting, irrigation water, and the cultural practices it takes to keep letuce growing and healthy.

In 1980, Hansen Farms planted the lettuce, brought in a crew of some 30 workers to thin it out, and brought the same crew back to harvest it. The kind of lettuce to be planted was decided by Hansen, as

Norman Martella said he makes enough money "to pay off my debts, get my kids through school and do some of the things I want to do." It makes him happy to see the crops and the ranch "in really nice shape." If things "go 50 percent right and everything looks good, then i'm happy," he said.

Norman Martella irrigated a cauliflower crop with water drawn from a reservoir of the underground Salinas River that flows beneath the valley. The 500-foot deep reservoir provides water low in salts. An abnormally high salt concentration in the soil would retard plant growth by reducing the rate at which plants absorb water.

were the times of planting and harvesting. Even the timing of the last two applications of water was determined by Hansen, since Hansen fieldmen knew best when they intended to harvest.

Most farmers in the region, Norman said, do their own planting, decide which lettuce to grow and when to harvest it. They hire crews to thin out the plants and do the harvesting.

Providing the land, irrigation water, and cultural practices is a full time job for Norman, his foreman, and a small irrigation crew. Early to bed (8 or 9 p.m.) and early to rise (5 a.m.), Norman spends most of each of 7 days a week at his work— except when he is traveling or on vacation.

In providing the land, Norman prepares the soil for planting. He and his foreman, Bill McClure, go over the soil several times with various implements to loosen it up and break it up into small pieces. When the dark rich soil of the valley is broken up so that lettuce roots and water can move freely through it, Norman levels it with an earth mover and chisel plows it one more time.

After he shapes the beds for the lettuce seed, the land is ready for planting. A precision planter inserts the tiny lettuce seed into the 18-inch-wide dirt beds at about 3-1/2-inch intervals.

If Norman is lucky, it rains right after planting. If there is no rain, he must irrigate the land at least twice to speed germination and early growth of the lettuce plant. To do this and to provide other irrigation through the growing season, he employs two full-time irrigators and a part-time pipe mover.

In about 2 weeks, when the new lettuce has established two leaves of its own (beyond those which originated in the seed), Norman or his foreman cultivates; that is, he drags a sharp cutting implement through the soil in such a way that any weeds which have grown up between the rows are cut down and the soil is loosened to receive still another shot of irrigation water.

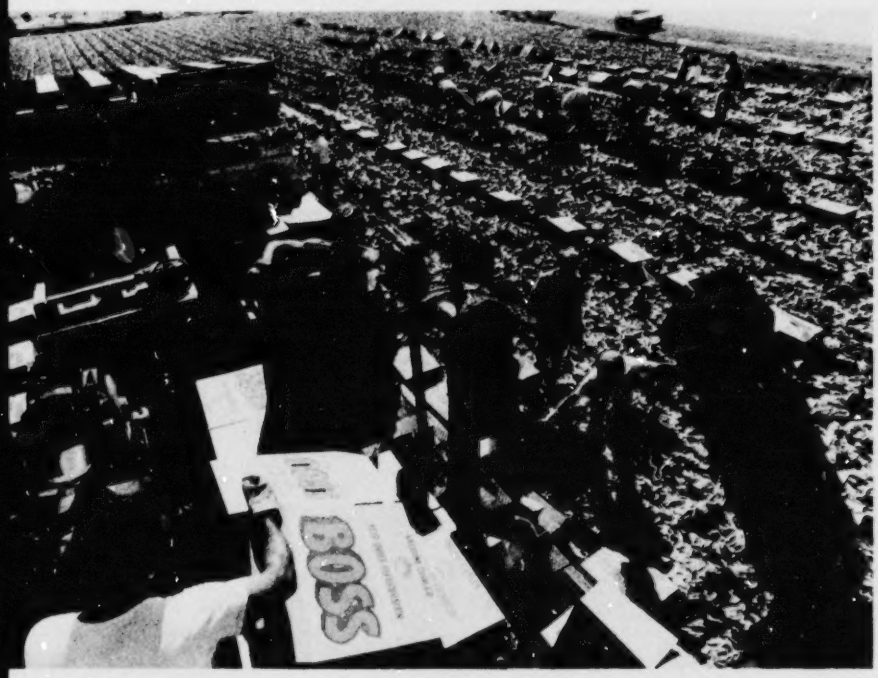
All that irrigation doesn't happen with the turning of a handle, however. Men have to haul the aluminum pipe with their risers like lawn sprinklers into the right fields, and then turn on the water. Norman has enough pipe to water a third of his land at a time. His men move the pipe from field to field as scheduled.

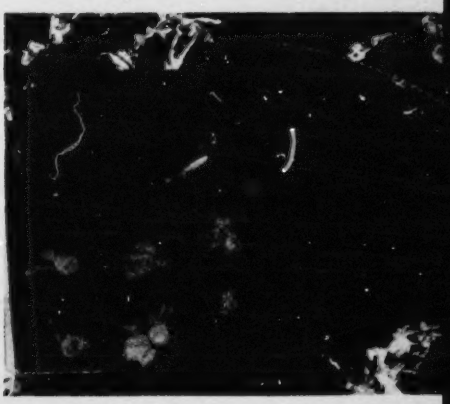
Because the farmer or, in Norman's case, the buyer doesn't want to have all his lettuce mature on the same day, he spreads out the planting schedule over several weeks. Norman's lettuce might be at 10 different stages of maturity at any one time, depending on when it was planted.

Next, the buyer brings in a crew of thinners. The thinner takes a long-handled hoe and chops out plants and weeds so that the remaining heads of

HARVESTING CREW WORKS AS A TEAM

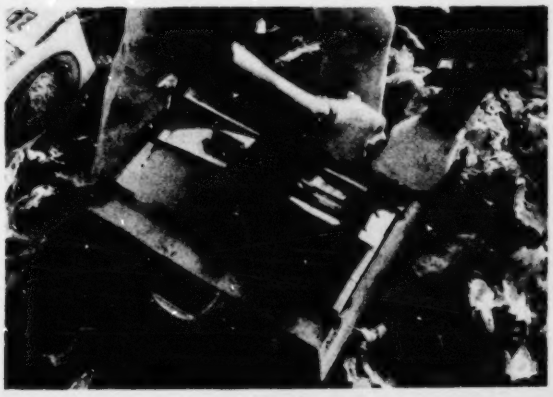
Hansen Farms crews started harvesting lettuce on the Martella farm at 6:30 a.m., as soon as it was light. Including box assemblers, row bosses and crew foremen, 39 persons were involved. Such a group can pack 5,000 cartons (120,000 heads) of lettuce a day.





Joe Esquivel, standing, left, is the lettuce harvest superintendent for Hansen Farms. Once a cutter, then a row boss, row foreman, supervisor and finally superintendent, Joe tells the sales office how many cartons he intends to harvest each day and knows by 10 a.m. whether they have been sold. Final shot of water in box, above, prevented lettuce from bleeding.

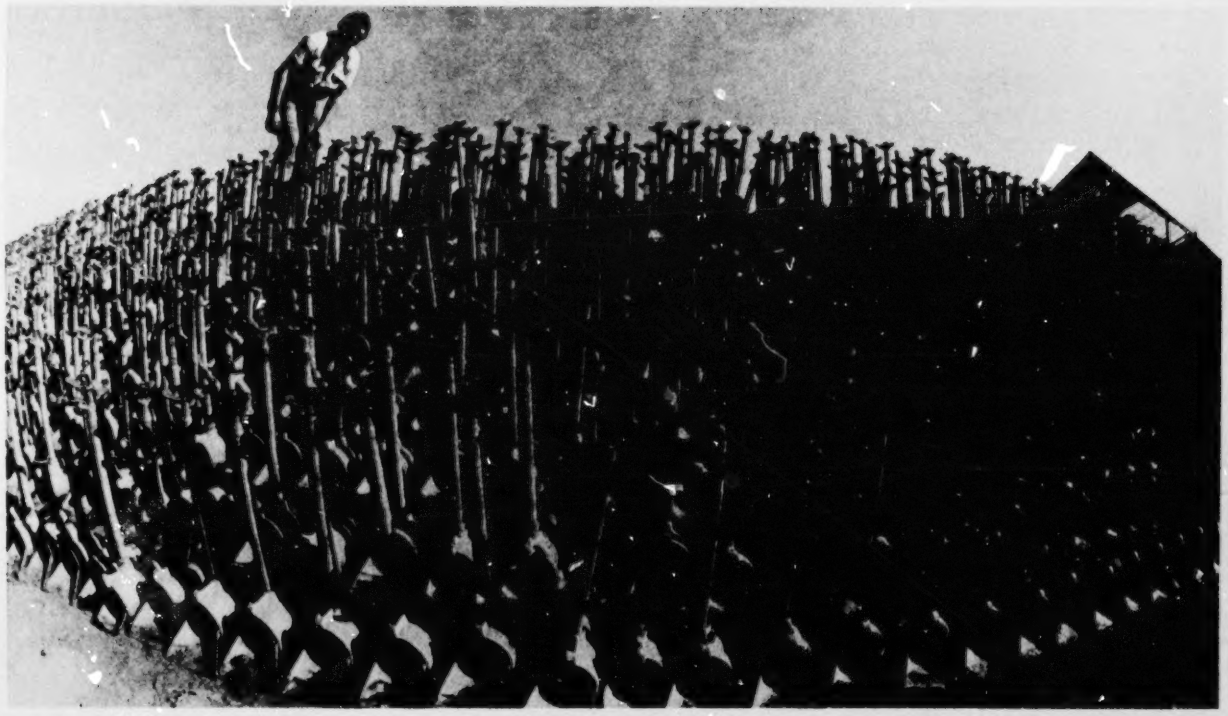
Boxes assembled on truck were tossed to ground where they were piled 18 or 20 high and distributed about three feet apart between rows of lettuce ready to be cut. Earning $15 to $18 an hour, or about $600 a week, cutters never seemed to straighten up, cutting heads on either side of where they walked at a point where no more than six leaves hung loose on each head. Eighteen cutters advanced at different rates along the rows, like racers in a giant swim meet. Behind them, packers stuffed heads three at a time into boxes, 12 on the bottom, another dozen on top. If they packed only 11 heads on the bottom they would be fired. Monterey County inspectors on the scene enforced quality regulations.



Closer stapled the boxes shut and the 50-pound cartons were tossed onto the truck. Lettuce was taken to cooler in Salinas, then placed in refrigerated trucks or rail cars for shipment "back East." Some crew members live in Salinas, where they work April to October. Some continue working until March in other lettuce-growing areas of California.

19

20



Nine miles of 30-foot long irrigation pipe, with risers, are used to bring water to vegetables grown on the Martella farm. The farm employs two full-time irrigators and a part-time pipe mover to shift the pipes between fields and connect them. Underground water supply helps Salinas Valley survive droughts. Irrigation supplements rains.

lettuce are 10 to 12 inches apart.

After the soil has dried out somewhat following the thinning operation, Norman cultivates the crop once again. By this time, the heads are about 4 or 5 inches across. Norman then applies some fertilizer, it he thinks the plants need it. There are only about 10 days left before harvest.

Harvesting on Norman's ranch starts in mid-May, about 40 days after the first planting, and continues about 1 or 2 days a week thereafter until the end of August.

When Norman isn't busy on lettuce, he's working on the cauliflower, either preparing the soil for planting, actually planting the crop, cultivating it, irrigating it, or harvesting it.

"You have to plant two crops here or you can't pay the rent," Norman explained. The work schedule for growing cauliflower fits neatly into the work schedule for lettuce. For instance, the harvesting of cauliflower in the spring usually ends just as the harvesting of lettuce begins.

Norman sees the farming operation of the typical produce farmer as separate from the financial aspects of the business.

"The farming you have to do, whether you know you're going to make money or not in order to have the end result," he said. "You have to do the same basic things."

What about the financial side?

"You're talking about a lot of gross income on a produce farm," Norman explained. "If I were farming these 200 acres on my own, my potential gross income would be about $1-1/4 million a year. Somebody who farms that much has the ability to handle massive amounts of money. Mishandling it could make the difference between whether you make money or not. There is no room for error—zero percentage. If I could make 1 percent profit on a gross of 1-1/4 million, I'd be very happy.

"Usually we're talking about 0.03 to 0.04 percent of gross income. The last good year we had, 1978, there were a lot of numbers batted around the valley--say, 2 to 2-1/2 percent (of gross)—and I mean there was more money in the valley than you could shake a stick at."

It is the businessman in Norman who goes to the buyer in September to talk about the terms of his contract for next year's crop. He goes well prepared.

Basically, he has to know what his operating costs will be for a year, taking inflation into account. He says he's been

Norman P. Martella Farms Inc.
Income and Expense Statement
For Year Ended October 31, 1980

Income		
Cauliflower		$100,680.00
Lettuce		232,440.00
Miscellaneous		3,431.00
Gross income		$336,551.00
Expenses:		
Auto and Truck		658.00
Depreciation		15,846.88
Gas and oil		21,010.67
Insurance:	State compensation	2,576.23
	Employee health	5,961.20
	Unemployment	1,714.27
	General	4,491.33
Interest		3,666.62
Herbicides and insecticides		1,157.18
Machine hire		7,330.50
Miscellaneous		17,544.53
Secretary of State		10.00
Accounting		520.00
Legal fees		1,001.00
Dues and subscriptions		1,300.00
Donations		265.00
Payroll taxes		6,794.75
Property taxes		1,450.89
Rent		72,854.21
Repairs and maintenance		45,971.79
Utilities		11,193.10
Wages		119,266.62
TOTAL EXPENSES		$342,594.77
Net loss from operations before income taxes		$6,043.77
State income taxes		$1,500.00
NET LOSS FROM OPERATIONS		$7,943.77

right on the inflation factor 12 years out of 12. To keep informed, he reads a San Francisco newspaper, a local newspaper, and a national financial journal. He watches news on television. He maintains many personal contacts, and includes attorneys among his close personal friends. At the State level, he's on the board of directors of the Agricultural Leadership Training Program of the Council of California Growers, and meets monthly with other producers to discuss a wide range of subjects. There are regular meetings with bankers, public officeholders, and others to keep up on anything that might affect agriculture.

He travels to other countries for an agricultural machinery manufacturer to help people in other lands learn the techniques of American agriculture.

"I try to diversify myself. I try to find out what's going on elsewhere," Norman said. "I listen to what a lot of people have to say. Then I sit down with my ol' calculator and come up with the numbers I need. But when you come up with statements that interest rates will hit 16 to 18 percent, just try to argue *that* 6 months in advance."

When Norman rebuilt the transmission of a 19-year-old tractor in October of 1980, he found that the parts cost $6,000, and the entire tractor cost only $10,000 when it was bought in 1961.

"If I hadn't learned the maintenance of machinery," he said, I'd have been out of business 10 years ago."

In 1968, the first year Norman contracted to grow for someone else, his gross income from the contract was $89,000. He grew roughly the same crops on the amount of land in 1980, a dozen years later, and his lettuce contract alone brought him $232,440. Yet, Norman said that his net income increased only slightly because of the rising costs of operation.

The cost of growing food has made a lot of farming big business, Norman said. Yet even large corporations get into trouble growing produce, he said.

"Personally, I think the conglomerates will be out of produce production in 5 years," he said. "Their stockholders won't stand for the losses." He cited one large company's operation as "not cost-effective" and "apparently a tax

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writeoff (the charging of farm losses against the profits of another, more profitable division of the company, for tax purposes)." He estimates another large firm was losing $100,000 a day.

"No one is really working there," he said. "They're just managing."

In his own fashion, Norman has worked the debt on his farm down to $72,000. And he's satisfied with the way he's been attacking it.

"If I were on my own in this game, I could make a million dollars tomorrow," he said. "Or I could lose a million.

"Other people aren't just talking about it. They're losing a million—or they're making a million."

Over the years, it hasn't been all work and no play for Norman.

He was married in 1967 to Cynthia, and they have four children.

The Martellas live in a typical California community within the city limits of Salinas and he drives to a farm office from there each morning. . .usually stopping at a nearby motel's coffee shop to talk with business friends at 6 a.m.

The Martellas go out to dinner weekly. They dance and play cards with friends, and travel. During the winter, they ski together as a family for a couple of weeks, then Norman and Cynthia go somewhere by themselves. . .in the past to Spain, Mexico, Tahiti, and the Caribbean. They enjoy the theater in San Francisco whenever possible.

Cynthia, who had never been associated with farming before meeting Norman, still leaves farming up to Norman alone.

"Just raising the children keeps her busy," Norman said.

"I've enjoyed my life up to this point," he said. "I've made a good living doing this. It hasn't been fantastic, but it's better than working for someone else."

Norman is working basically where his grandfather, a Swiss immigrant, started farming in 1904. He figured it would take $4 million for someone to start growing lettuce and cauliflower at the level that he's doing it. He estimated the land would cost $3.2 million, the equipment another $400,000, and bringing the first year's crops to the harvest, another $600,000.

"If someone were to come in and buy me out lock stock and barrel, land and all, I wouldn't take less than $1-1/4 million," he said. "But I'll never sell the land.

"If none of the children want to become involved in the operation, I'll sell out the business and equipment only. I'm not going to move. I'll either do consulting work or go to work for somebody else. But I'll never sell the land."

HOW DO YOU KNOW?

"I actually learned how to farm in about 30 days from my father when my brother quit," Norman Martella recalled. "I learned to know basically what was wrong with a crop and what it needed.

"I store all this information in my head. It would take an office three times this size to write it all down and store it. It is completely impossible to put all the variables in.

"When you make a decision, you need instantaneous information. A few hours can make a difference as to whether you have a crop or not.

"Say you have 2 to 3 weeks to harvest and a dry spell starts. What do you do? That depends on what the temperatures have been and what they are expected to be and whether the crop has just been irrigated, or just been cultivated, or just been fertilized, or just been sprayed with insecticide. What are the color and texture of the leaves? How fast can you get water and fertilizer on it?

"The computer isn't looking at the lettuce. It doesn't know what you mean when you say the lettuce looks awful.

"Put on too much fertilizer and it stays warm, you get too big a head of lettuce. What is the temperature of the soil? Pick some dirt up in your hands and feel it. You can tell.

"Thermometers work fine if you want to gather a lot of statistical data. All you're doing is gathering a lot of statistical data that's going to sit somewhere. It's meaningless information.

"You can't teach somebody how to grow lettuce. There's no way possible to write down and have somebody learn how to grow lettuce, celery, broccoli, cauliflower, or any of those products. . .out of a book. The only way to learn is to go out and grow it.

"Say you're going through a long winter period and it's wet. Should you side dress the lettuce with sodium sulfate. . .if you can get at it? Maybe you're going to get some good out of it, maybe you're not. Maybe you're better off putting calcium nitrate on it. . .get an instantaneous reaction. You don't know how much of that nitrogen has been washed out of the soil. You don't worry about the other two elements, potash and phosphate, because they don't leach too much. But you never really know where you're at on the nitrogen scale. You don't know how much has broken down or how much humus is left in the soil from the last crop. You can't find out from soil tests. They won't tell you how much humus you have. They'll tell you what your indexes are, but that doesn't tell you anything.

"You're still going on the basis of the seat of your pants, you know. What do you think is going to work?

"You try it. If it works, it works. If it doesn't, it doesn't."

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Peas must have the right degree of hardness before canner's combines will enter grower's field for the harvest. Bob Bergum, right, who grew the peas, and Roger Icenogle, left, field foreman for the Del Monte Corporation, examined peas together as six tractor-pulled combines harvested the crop. Trucks hauled away 6 tons per load.

BACK TO THE FARM FROM THE GRIDIRON

Tall, muscular Bob Bergum played left end for the Detroit Lions football team for 3 years but he would rather grow peas in Wisconsin. He grows them by the ton.

Bob grows peas, along with his father Eugene and brother Paul, just north of Madison, Wis. because:

1) There is a processing plant nearby to can the peas;

2) It helps with the cash flow during the summer, and

3) Competing crops, such as feed corn, don't pay quite as much.

Without any of those factors, Bob might very well not grow green peas for a canning company. Unlike many of the vegetable growers of California and Florida, the farmers of central Wisconsin have a real choice. They can grow something else. They have very little invested in machinery that is restricted to the growing of vegetables.

The Bergum brothers and their father farm 1,000 acres near Rio (pronounced Rye-o in Wisconsin), and devoted only 80 acres to peas in 1981. The rest were planted to wheat, corn, and soybeans.

"It helps our bargaining position with the canners," Bob said. "They have to compete with the price of corn. With field corn bringing good prices, the canners are finding it harder to find growers."

Wisconsin farmers grow slightly more than a million tons of vegetables for processing each year, much more than any other State except California, which grows six times that amount.

By producing 120 tons of peas on 80 acres, Bob is doing his share.

Generally, Bob plants his peas the last week in April, but only after he has signed a contract with a canner. In 1981, he signed with the Del Monte Corporation.

Bob described a typical brief bargaining talk.

"They offer me a price of so much a ton. I say I'd like to put in so many acres. They say how many acres they want planted. For instance, I might say 20 acres at that price and they might counter with 12. Then we agree."

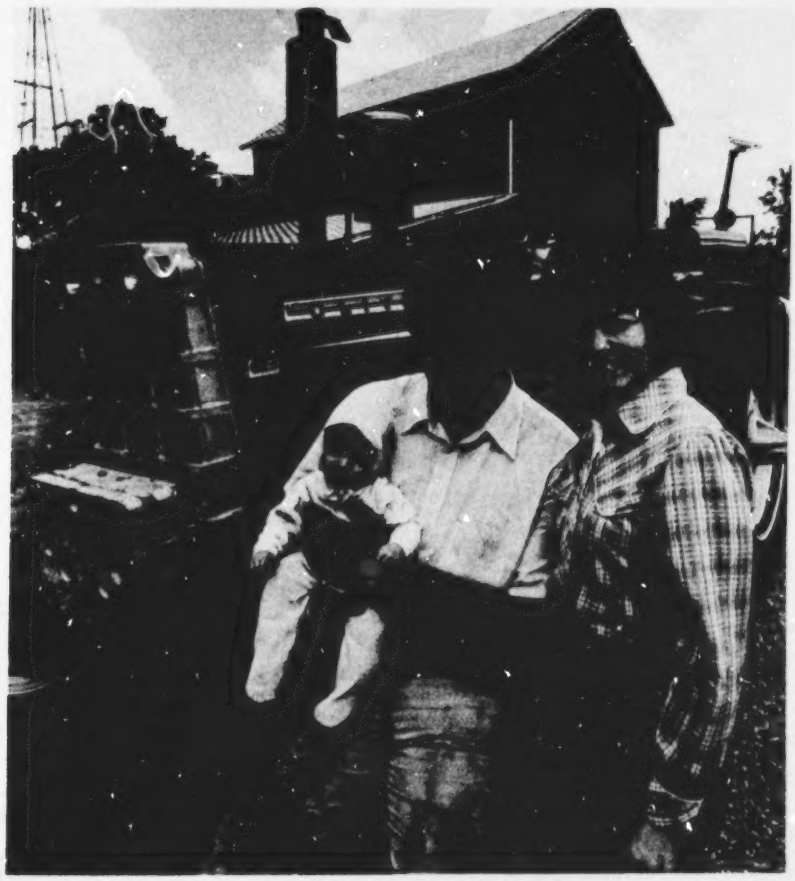
The buyer supplies the seed and deducts that from what Bob receives.

"Del Monte raises all their own seed and it provides a good yield," Bob said. "They also provide the spraying and the harvesting. They deduct some for hauling the peas to the plant, depending on the mileage."

The way Bob figures his expenses and income for growing peas on each acre of land is shown on the following page.

EXPENSES	
primary tillage (his labor) and machine)	$8.00
secondary tillage	9.00
planting	4.50
fertilizer	30.00
seed	60.00
land cost	96.66
TOTAL	$208.16
Interest (15%)	31.22
Total Expenses	$239.38 per acre

RETURN	
average yield	3,000 lb. (1.5 tons) per acre
break-even price	$160 per ton ($239.38÷1.5 tons)
(with 15% return to management)	$184 per ton
contracted price	$189 per ton
NET INCOME	$7.50 per acre



Three-month-old Ben Bergum learned to float on his back on the day his picture was taken. His mother, Cheryl, above, was on vacation from teaching fifth grade and took him into town for swimming lessons.

Bob gets the contracted price only when his peas register between 9[illegible]100 on a little machine called a Tenderometer. The canners don't want their peas too squashy or too hard before they are cooked in the cans. They want them just right.

A Tenderometer is a metal machine about the size of a basketball, with a long handle outside and sets of teeth inside that fit into each other as the handle is turned. It looks like a big hand-operated ice crusher.

On the day before Del Monte was to harvest Bob's peas in June of 1981, Roger Icenogle, field foreman for the canning company, visited the farm and took samples of Bob's peas to the Tenderometer. The sample registered too soft, and Roger judged it would take another day for the peas to reach an acceptable level of hardness.

Bob considers farming much more of a challenge than professional football.

"In professional football you're treated pretty much like a piece of meat." he said. "If you do a good job in farming, the success is right here looking you in the face everyday. There is nobody else to take the credit or the blame."

Both Bob and his wife Cheryl hold bachelor's degrees. Cheryl not only teaches 5th grade in a nearby school but gets involved in a lot of work around the farm as well. She taught school in Michigan when 6-foot-5-inch Bob played for the Lions.

After the football years (1969-71), Bob became a canning equipment salesman.

"But he was gone 40 weeks out of the year, and I said I'm not going to live this way," Cheryl recalled. So Bob asked his dad if he could come back and farm with him. His dad agreed. Cheryl grew up on a dairy farm nearby and likes living in the country. She also likes "the family situation," meaning Bob is home and they

work and play together a lot. Cheryl drives the tractor while Bob bales the hay.

"When he hollers at me for driving too slowly, or stopping abruptly I tell him he'll have to find another driver," she laughed.

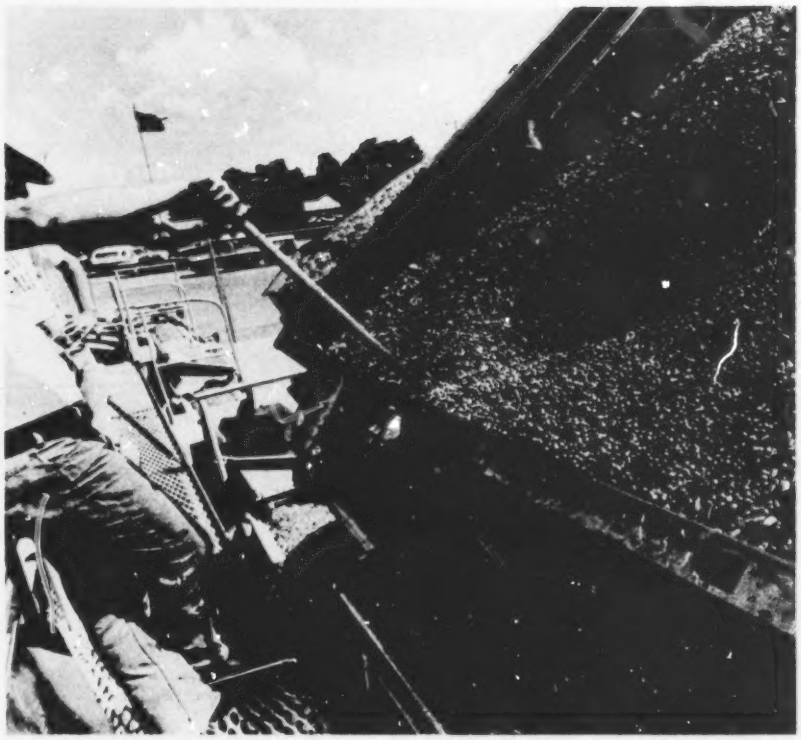
Cheryl also helps the mother sheep (ewes) in the spring when they have trouble bearing lambs. They keep 50 ewes on the farm, just behind the house, "to keep things cleaned up (the pasture mowed)". There are 30 beef cows pastured on another, rented farm.

She bottle feeds the lambs when they become separated from their mothers because the mothers refuse to accept them as their own after separation.

When they first came back to the farm, Cheryl noticed there were some afternoons when Bob would be gone and she knew he wasn't working. Finally, she asked him, "Where have you been?" He replied, "just looking." So Cheryl went "looking" with him.

Together, now they drive the roads that border the fields where Bob and Paul have worked so hard to till the soil and grow their crops. She shares the pride of straight rows, green healthy plants, and good-looking animals.

And the only thing that frustrates her is that she doesn't have enough time to get everything done.



So few green peas are available fresh in the market the Government stopped measuring their production in 1969.

Some freshly-harvested peas were unloaded, above, at one of several canning plants in Wisconsin.

Early summer harvest of peas permits planting another crop in same field the same year. At left, Bob Bergum and his brother Paul measure the depth at which soybeans are planted in ground where peas had grown.

WINTER BELONGS TO FLORIDA AND MEXICO

When Johnnie Goodnight plants his bell peppers and tomatoes in the grey soil of subtropical Collier County, Fla., he keeps one eye mentally fixed across the Gulf of Mexico. Mexican growers, particularly the growers near Culiacan in Sinaloa State, are his strongest competitors in satisfying the U.S. hunger for fresh vegetables in the winter.

Johnnie (it's really John E., but everyone calls him Johnnie), his father, John, his brother, Gary, and Arthur Flores are in a partnership, growing luscious green bell peppers, tomatoes, and watermelons on 840 acres of drained and irrigated land in southwest Florida. They don't own the land. They lease it from a land company.

The Goodnights lease their land from the Collier Development Corporation, which is said to own at least 80 percent of the farmland in Collier County. Only a little over a half of the acres the Goodnights lease, though, is in crops. Much is in ditches and roads. The Goodnights planted 300 acres to bell peppers in 1981, and the rest to watermelons and tomatoes. The only land they own is 100 acres they bought in 1980 to be developed eventually as a citrus grove.

Together, Florida and Mexico provide nearly all of the fresh vegetables consumed in the winter months in the United States. For instance, in the winter of 1980-81, Mexico provided 46 percent of the fresh tomatoes sold in the United States from December to April, and Florida provided 50 percent. But each area's share of the market changes from year to year and from month to month within any given year.

Mexico supplies most of the fresh vegetables to the United States during January, February, and March. Florida supplies large quantities in each of those months, but provides more than 50 percent of the fresh vegetables during November, December, April, and May.

Florida growers are protected, to an extent, by this country's tariff laws, which impose import duties on certain vegetables during certain months. Tomatoes coming in from Mexico, for instance, have a tariff levied on them of 1.5 cents or 2.1 cents per pound, depending on the month of entry. Other vegetables covered include asparagus, cucumbers, beans (other than lima), eggplant, peppers, and squash.

Johnnie Goodnight is president of the Southwest Florida Winter Vegetable Growers Association, which charged that Mexico has "dumped" vegetables on the U.S. market; that is, sold them here at less than the cost of production. The Federal Government ruled that the Mexican growers were not dumping, but the association appealed that decision to the U.S. Court of International Trade in New York City.

"There's nothing quite like the vegetable business if a guy's lucky enough to strike while the gettin's good," Johnnie said. The prices that Johnnie gets for his peppers range from $6 to $18 a carton over the weeks and through the years. In the spring of 1981, some farmers in Collier County simply didn't harvest their peppers when the price offered them was $6 a carton (which contains 1-1/9 bushel).

"At $6 a carton, I lose money," Johnnie explained. "At $10 a carton I make a lot of money."

There are a lot of "ifs" in the numbers, but this is the way Johnnie figures his net income on the peppers:

He averages a production of 750 cartons to the acre. It costs

At left, Johnnie Goodnight, who majored in economics in college, grows two crops of vegetables, fall through spring, on 840 acres of leased land in Florida.

At right, bell pepper harvesters, many of them Haitians, were paid 40 cents for each bucket of peppers picked in the Goodnight operation in 1981, earning about $45 a day. Labor was Goodnights' largest cost item in 1980, reaching nearly $400,000.

him $3,500 an acre to grow and harvest the peppers (nearly half the cost is for harvesting). That means, on the average, he needs $4.26 a carton to break even. But he must pay the packing company in nearby Immokalee about $2 as a sales commission. So Johnnie really needs about $6.26 a crate to break even.

If his production soars to 1,200 cartons to the acre, of course, he can sell for less money and still break even.

The 6-dollar price, by the way, is for "large" peppers, the top of the line. If some of Johnnie's peppers are graded less than "large" at the packing house, his price will be lowered accordingly.

Johnnie says the fresh produce market is one of the true supply and demand markets left in the world today. He doesn't know whether his peppers are sold until a deal has been struck over the telephone.

One day in April of 1981 Johnnie was watching his harvesters pick peppers that hadn't, as far as Johnnie knew, been sold yet. He only knew they had to be picked, because they were mature. Peppers are good for picking for only 2 or 3 days.

"Today, they're talking $10 for large," Johnnie mused. "We're picking peppers and our salesman is trying to get $10. If he sells out by 9 o'clock, he is selling them too cheap. If there are no buyers by afternoon, he's too high. If 8 or 10 people won't pay $10, you know there's something to it. The price is up to the salesman. He can come down to $5 without seeing me."

Johnnie's operation is medium size by Southwest Florida standards. There are some small farmers with less than 200 acres in vegetables. The medium size farms range from 400 to about 800 acres. Then there are some large farmers who own or lease several thousand acres.

Johnnie said the Goodnight enterprise hadn't shown a profit in 2 years. In the spring of 1981, he figured it was $950,000 in debt. Yet he was confident this would diminish considerably as the harvest of vegetables progressed.

Johnnie's fuel bill ran $12,000 to $15,000 a month in 1981. Most of that goes into pumping water—out of the fields in the wet season and into the fields in the dry season. Vegetable growers in southwest Florida are virtually water engineers. They don't irrigate by sprinkling overhead or by running water between the rows of crops. Rather, they dig big ditches at the edges of the fields and fill them up with water to the level of the root zone. The water then seeps through the ground to the vegetable plants. Naturally, this is called seepage irrigation.

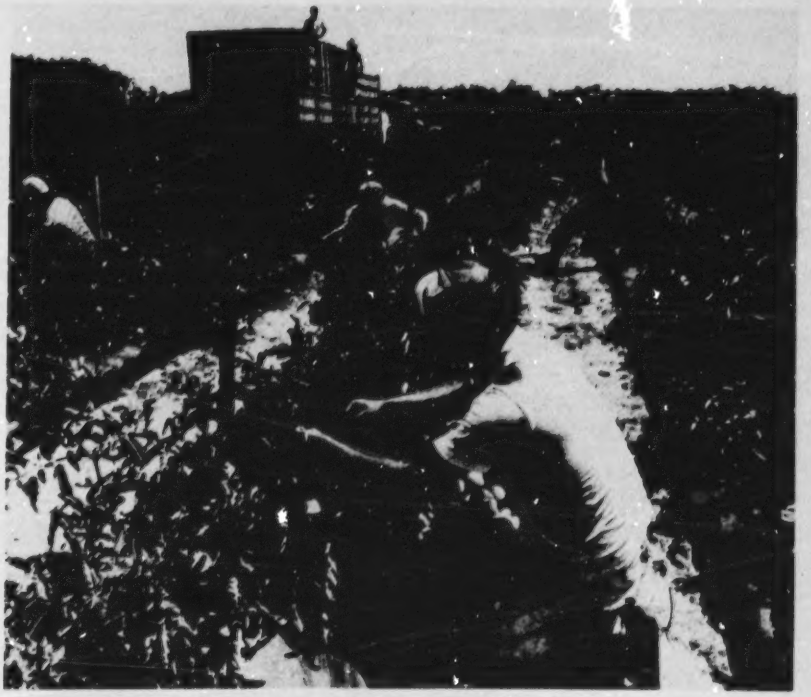
The greatest expense of the partnership is labor, which cost them about $400,000 in 1980. Labor is so important to the enterprise that the Goodnights made a former crew chief a partner in the firm. Arthur Flores owns 25 percent of the farm. Usually the crew chief is an independent operator who provides a given number of harvesters for an agreed-upon price.

Johnnie is worried about inflation. His costs of operation have climbed unremittingly in recent years.

"There may come a day when only the extremely rich will be able to afford fresh vegetables," he said. "Every time an auto worker or a steel worker is laid off, I lose a customer. The unemployed don't eat fresh fruits and vegetables. They eat beans and rice."

"I worry as much about that guy losing his job as he does. When it comes to making a choice, this (pointing to the bell peppers) is what they'll do without."

Many of the tomatoes grown in Florida to be sold fresh rather than processed, are held off the ground by strings that are tied to stakes between plants. Compared to California's machine harvest, fresh market tomatoes are picked by hand so there is less danger of their being bruised before reaching the market. Most such tomatoes are picked while they are green but mature, then placed in a controlled-atmosphere ripening room before shipping.



IDAHOANS GROW POTATOES

They grew 7.8 billion pounds of potatoes in Idaho in 1980—far more than in any other state and a quarter of all the spuds grown in the whole country that year.

Ferrell Palmer did his share. His 475 acres near Aberdeen produced 13 million pounds of potatoes that year, enough to make 52 million servings of French fries. He made money on them, too, selling them at an average of $6 per hundredweight, or 6 cents a pound. It cost him 3 cents a pound just to grow them.

A year earlier, Ferrell sold his potatoes for 2.5 cents a pound, which is less than it cost to grow them. Some years—Ferrell calls them "the bankrupt years"—he sold potatoes at a half a cent a pound.

Fortunately, potatoes don't have to be sold the day they are dug. Ferrell stores the potatoes he harvests in the fall in huge metal buildings where the atmosphere is controlled to enhance storage time, and in other half-buried buildings he calls cellars, where fans keep the air moving over the mountains of potatoes all winter. Ferrell keeps an eye on the markets and tries to get the best price being offered between September and April for cellar-stored potatoes, and between September and July for the potatoes stored in a controlled atmosphere.

Potatoes that will be sold fresh—that is, in their original form—will bring him the most money. Many of his sales are to processors, who make Ferrell's spuds into potato chips, French fries, or dehydrated potatoes. Quite often, a processor will take the best-looking potatoes of those bought for processing and resell them in the fresh market.

One of Ferrell's problems is that fresh-market buyers don't

Baking potatoes—or russets—is what Ferrell Palmer grows; by the thousands of tons. Palmer is one of declining breed, though; only 28,500 farms produced potatoes in 1978, the last year they were counted, down 60 percent from 1963. Potato production has increased in that time, though. Most potatoes are processed rather than offered fresh in the supermarket.

want off-shaped potatoes. Even the processors discount prices on them. But these too big, too small, or weird-looking potatoes might represent a third of a farmer's crop.

For years, the farmers have been "giving" these misshapen potatoes to the processors, who lower their prices because of them.

So Ferrell found a use for these "roughs," as they are called. He built a large distillery on his farm, which makes alcohol out of chopped "rough" potatoes. He plans to use the alcohol in running his machinery. In fact, he plans to cut his fuel bill in half once his machinery has been adapted to the burning of alcohol.

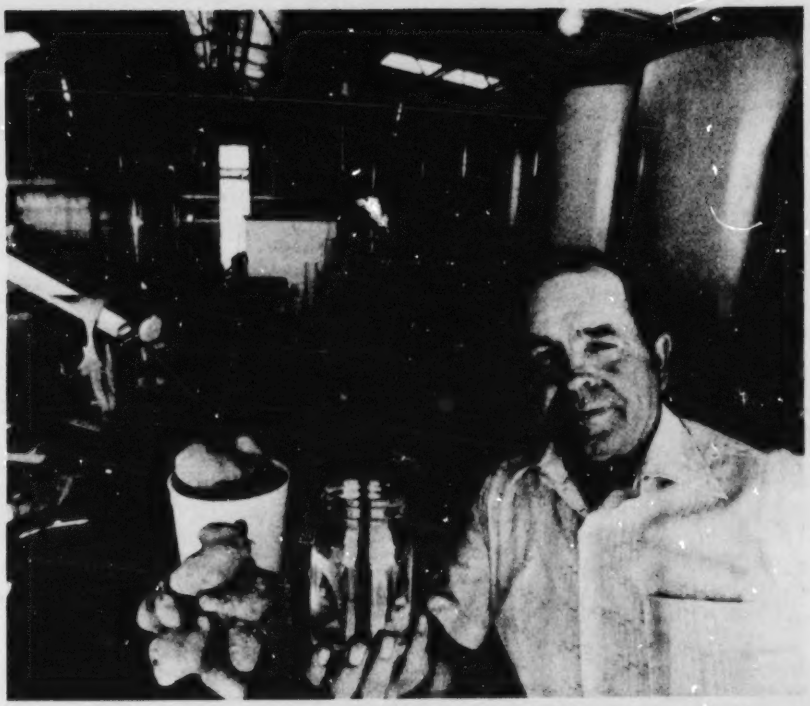
Ferrell has begun to use the mash that is left over from the distillation process to feed to his cattle as a protein supplement. Practically all of the carbohydrates have been eliminated. The cattle love it.

Other cattlemen and dairy farmers have inquired about buying the mash that Ferrell doesn't use. Fuel distributors from as far away as Oregon and California have inquired about buying his surplus alcohol.

Ferrell believes the new distillery must be operated 300 days a year to be efficient. He doesn't think he'll run out of potatoes because at the moment, he can get all the rough potatoes he wants at other farms just by hauling them away.

So what was once a problem for Ferrell is now a whole new business for him.

Relatives and friends play important roles in harvesting Palmer's potatoes. Above, his 14-year-old daughter Caroline, right, and her friend, Vivian Speth, earned $3.75 an hour pulling stones and dirt chunks off the conveyor belt loaded with machine-dug potatoes. Below, cleaning by men and women continued in the farmyard alongside belt that leads to bay storage.



At left, misshapen potatoes (roughs) are the raw material of the 190-proof alcohol that Ferrell Palmer produces in this half-million-dollar distillery. Enzymes convert starch to sugar, which yeast in fermentation tanks converts to alcohol.

Ferrell Palmer, left, was a year old when his father, John, right, moved to the Aberdeen area. After the 1980 harvest, they stood at the entrance to a 176-foot-long storage bay that held the equivalent of 50,000 100-pound sacks of potatoes. Twin bay adjoining held another 2,500 tons. A storage cellar nearby could hold 6 million pounds.

THE SMALL FARMER COMES TO BAT

In July, when the big growers of Florida have almost slowed production of bell peppers to a halt and their counterparts in California are just getting warmed up, it is time for the North Carolina small farmer to take a swing at the market. That month these farmers produce 40 percent of all the green peppers shipped in the United States.

Furthermore, the small farmers sell their production just like their grandparents did—in the same way, as a matter of fact, that most vegetables were marketed years ago—at open auction.

One such farmer is William N. James of Bowden, who usually grows about 12 acres of peppers each year on his 131-acre farm located about 25 miles south of Goldsboro, N.C. on highway U.S. 117. William and his sons also plant 20 acres to tobacco, 8 acres to cucumbers, 10 acres to stringbeans, and 80 acres to field corn. The fields that have been planted to vegetables early in the year are followed in the same year with still another crop, such as soybeans.

"So far we've been able to get along," William said, "Over the years we've fared about as well farming as we would have working for others. I've always been a small farmer. That's all I intend to be."

He has just the right amount of water storage with a 6-acre pond and a "water hole" to be able to irrigate the 146 acres that he tills. As William puts it, "I can wet all I can tend."

"I wouldn't want to gamble on big equipment at my age," he said. William is 54. "I prefer that my sons not either. One crop failure this day and time and it hurts."

That's the principal reason he grows vegetables.

"You've got to have too many acres to live on corn alone," he said.

The auction at Faison, 5 miles from the James' farm, serves about 400 farmers just like the James' from about May 20 to August 1. With enough room for about 15 trucks at one time—pickups full of fresh produce—the Faison Fruit and Vegetable Exchange is a rare survivor of another age. Only one other market, located in New Jersey, is comparably large.

Farmers bring in squash, beans, cucumbers, bell peppers, eggplant, butternut squash, acorn squash, and hot peppers to be auctioned off to the highest bidder.

On July 1, 1981, there were 15 buyers in the market bidding for the vegetables which had been graded for size and maturity by government inspectors. They followed the

auctioneer, Jimmy Jolliff, around the enclosed area in a cluster, from pickup to pickup, to make their bids.

The day before, the exchange had handled $289,000 worth of sales, and the day before that $378,000. About 25,000 crates of peppers and 5,000 bushels of cucumbers were shipped out each day to places as far away as Texas, Minnesota, and Canada.

"There will always be small farmers," said Harold S. Precythe, president of the Faison Exchange, "So this market will always be here."

Snodie Wilson, Duplin County Agricultural Extension Agent, said the small farmer grows vegetables because of the potential for high net income on small acreage. The prices must encourage them because North Carolina ships more bell peppers in July than any other State in the Union, and, when June and July are combined, that State ships more cucumbers than any other State. In a world governed almost entirely by supply and demand—the fresh produce market—there is plenty of demand for the North Carolina small farmer's produce during those few weeks of June and July.

The James' family got $13.25 per crate (1-1/9 bushel) for their largest peppers on July 1, and $8.70 per crate for the rest.

Extension economists and horticulturists estimate that Duplin County farmers earn $293.77 an acre on their pepper crops, counting all of their cash expenses plus such other costs as depreciation and their own management. That's with peppers selling at $5 per bushel. Other vegetables would bring the following: cucumbers, $291 per acre; snap beans, $223.80 per acre, and summer squash, $410.44 per acre.

None of the vegetable crops compare well, however, with returns on acreage devoted to flue-cured tobacco. On a medium-sized planting of 25 acres, flue cured tobacco returns the owner $1,369.92 per acre. But the amount of acreage that each farmer can plant is restricted by the government after farmers have voted for a restriction in a referendum.

At left, William James will harvest a field of bell peppers four times as individual peppers mature—if the price stays up. Sometimes the price James gets won't pay the cost of harvesting.

Washing and separating the peppers by grade in the field were, below, James' wife, Ren, right, and neighbors Mrs. Pat Holland and Mrs. Judy Hardison. Mrs. James also helps with tobacco crop.

At left, harvester Robert Carlton helped Melvin James load pickup with peppers to be driven to market. Pickers are local people, who also help the Jameses with their labor-intensive tobacco crop.

At right, Linda Lynn Kornegay, a State inspector, looked over the bell peppers offered by Melvin James in the Faison Produce Auction Market, checking them for defects, size and maturity, according to federal standards. Buyers bid after she marked the crates.

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Jimmy Joliff, second from left, was auctioneer July 1, 1981 when Melvin James, left, sold his pickup full of bell peppers to bidders at right. Five produce brokers own the market and assure, through an exchange, that the farmers are paid for their vegetables within three days. Many of the farmers grow vegetables on only 25-30 acres.

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